

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-027242**Date Inspected:** 24-Feb-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Chuck Storer/Fred Von Hoff**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG Components**Summary of Items Observed:**

On this date, Quality Assurance Inspector (QAI) Kenneth Riley was present at the San Francisco Oakland bay Bridge job site at Yerba Buena Island to observe erection and welding activities for the San Francisco Oakland Bay Bridge (SFOBB) project. This Quality Assurance Inspector (QAI) observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A) Deck access Hole
- B) Vent Holes
- C) Water lines

A). Deck access Hole

The QAI observed that welder Jason Collins along with helper/apprentice Devan Murphy were using the semi-automated Flux Cored Arc Welding (FCAW) process, with electrode E71T-1M for the Complete Joint Penetration weld in the flat (1G) position at 8E PP70.5 E2 Deck Access Hole (DAH). This QAI observed that the Welding Procedure Specification (WPS) used for this location was ABF-WPS-D15-3010-1 and a 1.6mm electrode was used for the intermediate and cover passes at the west radius. The welding parameters were checked by the QC for this location and observed by this QAI as 225 amps, 23.8 volts and Heat Input of 1.0. The welders had used a weed burner to pre-heat the area prior to welding at 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was also observed by this QAI as using a chipping hammer, power grinder and power wire wheel for the interpass cleaning. The welding team completed the west radius and proceeded to set up the Bug-O for the straight edges of the DAH. Once this set up was complete the team would continue the welding operations after lunch. The QC inspector for this location was Chuck Storer and

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was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

Later in the shift the welder Jason Collins along with helper/apprentice Devan Murphy were using the semi-automated Flux Cored Arc Welding (FCAW) process, with electrode E71T-1M for the Complete Joint Penetration weld in the flat (1G) position at 8E PP70.5 E2 Deck Access Hole (DAH). This QAI observed that the Welding Procedure Specification (WPS) used for this location was ABF-WPS-D15-3010-1 and a 1.6mm electrode was used for the intermediate and cover passes for the straight edges of the DAH. The welding parameters were checked by the QC for this location and observed by this QAI as 269 amps, 23.8 volts and Heat Input of 1.8. The welders had used a weed burner to pre-heat the area prior to welding at 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was also observed by this QAI as using a chipping hammer, power grinder and power wire wheel for the interpass cleaning. The QC inspector for this location was Chuck Storer and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

B). Vent Holes

The QAI observed that welder Salvador Sandoval, was using the Shielded Metal Arc Welding (SMAW) process, with electrode E7018 for the Complete Joint Penetration weld in the flat (1G) position at 13E PP119.7 E5 Vent Hole. The QAI observed that the welder had fit the 20mm plate insert at this location with the copper backing. The QC inspector Salvador Merino had verified the fit-up and found it to be acceptable. This information was relayed to the QAI by QC inspector. This QAI observed that the Welding Procedure Specification (WPS) used for this location was ABF-WPS-D15-1050A-CU and a 3.2mm electrode was used for the root and hot passes. The welding parameters were verified by this QAI as 142 amps. The welder was observed using a weed burner to pre-heat the area prior to welding at 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was also observed by this QAI as using a chipping hammer, power grinder and power wire wheel for the interpass cleaning. The QC inspector for this location was Fred Von Hoff and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

Later in the shift the welder Salvador Sandoval, was using the Shielded Metal Arc Welding (SMAW) process, with electrode E7018 for the Complete Joint Penetration weld in the flat (1G) position at 13E PP119.7 E5 Vent Hole. This QAI observed that the Welding Procedure Specification (WPS) used for this location was ABF-WPS-D15-1050A-CU and a 4.8mm electrode was used for the intermediate weld passes. The welding parameters were verified by this QAI as 247 amps. The welder was observed using a weed burner to pre-heat the area prior to welding at 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was also observed by this QAI as using a chipping hammer, power grinder and power wire wheel for the interpass cleaning. The QC inspector for this location was Fred Von Hoff and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

C) Water Lines

The QAI observed that welder Damien Llanos of F.W. Spencer, was using the Shielded Metal Arc Welding (SMAW) process, with electrode E7018 for the four inch (4") waterline. The welder was placing the Complete

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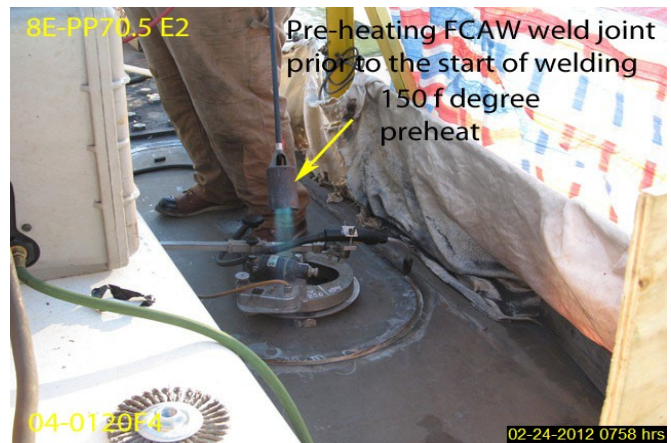
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Joint Penetration weld in the 5G position for PP88 at the southwest barrier weld number 33/4/98/SW. The QC inspector Steve Jensen had verified the fit-up and found it to be acceptable and relayed this information to the QAI.

The Welding Procedure Specification (WPS) used for this location was 1-12-1 which included a E6010 root pass with welding at 90 amps and E7018 for the intermediate/cover pass with a welding amps at 78. The welder was observed by this QAI as using a power grinder and power wire wheel for the interpass cleaning. The QC inspector for this location was Steve Jensen and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

The QA inspector observed the QC activities and the welding utilizing the WPS's as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspectors utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The consumables utilized for the welding process stated appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

Unless noted otherwise, all work observed on this date appeared to be in general compliance with the contract documents at the time of observations.



Summary of Conversations:

Basic conversation, fundamental to completion of the tasks at hand, occurred between this QAI and ABF QC personnel.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By: Riley, Ken

Quality Assurance Inspector

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Reviewed By: Levell,Bill

QA Reviewer